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ABSTRACT

The Community College Motivation Inventory (CCMI), devised to have special relevance to college educational and counseling objectives, is based on the interaction of three areas of motivation: intrinsic versus practical, action-oriented needs; status-seeking motives; and group versus one-to-one interpersonal relations. The three factors--Intrinsic Motivation, Self Enhancement, and Person Orientation--are scaled producing eight "types" of motivational structure. In addition, Infrequent Response, identifying those whose responses have little commonality with others; Goal-Deficiency, identifying those with feelings of inadequacy, depression, and anxiety; and Sex Differentiation scales, identifying practical and esthetic personalities, were developed and applied to further specify personality type. Scale development, retest reliability, internal consistency, independence of selected CCMI scales, validity, sample items from each of the scales and explanations of the scales themselves are discussed. Inventory interpretation is clarified in terms of interaction among scales and additional research possibilities, and administering and scoring CCMI is discussed. Appendices cover validation data, standard selected scores for males and for females, item identification/content, and copies of the six scales. A bibliography is included. (TR)

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COMMUNITY COLLEGE MOTIVATION INVENTORY

– *RESEARCH MANUAL*

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MERRITT COLLEGE

BERKELEY TESTSCOR

Berkeley, California

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The

COMMUNITY COLLEGE MOTIVATION INVENTORY

-- RESEARCH MANUAL

by

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Oakland, California

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FOREWARD

The construction of the scales of the Community College Motivation Inventory (CCMI) has been in process over the past eight years. In its present format, the instrument consists of six scales. In addition to the original four scales of the Inventory two new scales have been added in this first published version of the CCMI: a scale for measure of the masculinity-femininity dimension and a scale composed of items infrequently endorsed by community college students.

Conceptually, the CCMI is an open-system test; it is anticipated that additional scales (some already under construction) will be added later.

Grateful acknowledgement is made to the following psychologists who, for the four basic scales of the test, allocated items: Frank X. Barron, Harold D. Carter, Harrison G. Gough, E. Lowell Marshall, Richard E. Peterson, and John M. Rehfisch. The author is indebted to Wilson T. Price for computer assistance.

College personnel who have provided scores and pertinent data are gratefully acknowledged. They were Jessie Stone (Diablo Valley), John A. Davitt (Glendale College), Kenneth R. Neuberger (Laney College), Thomas W. Carpenter (Merritt College), and Billy C. Henderson (College of Alameda).

The CCMI has been used in a number of research studies and projects on other campuses in the past few years. Exploratory use of the instrument includes evaluation of nursing students at Merritt College and at the College of the Redwoods (Eureka, California). Other studies have addressed the problem of college student dropout; use for appraisal of cadets for the Oakland Police Academy; and for selection of students for differentially structured learning approaches in instruction.

Although the CCMI should have special relevance to the educational and counseling objectives of the community colleges, the Inventory ought not be restricted to experimental use in the community colleges only. It is anticipated that the CCMI will have usefulness in high schools, colleges and universities, business and industry, and in various kinds of clinical-counseling agencies whose clientele are between the ages of, say, 15 to 80 (or older).[1]

[1] The inventory described in this first edition of the manual is offered for experimental use to those interested and involved in educational and psychological contexts. Test booklets and answer sheets may be obtained from the author. Address: 284 Purdue Avenue, Berkeley 8, California 94708.

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I. THE INVENTORY: NEED AND BACKGROUND

The multitude of tests and measurements used, more or less effectively, in four-year institutions of higher learning and in clinical practice are not well suited for administration in what is becoming this nation's most rapidly growing segment of higher education--the community college. The reading level of many community college students is such that currently available instruments for assessing individual characteristics (even non-cognitive ones) seem of dubious value. Few of these instruments have been adequately standardized for use with community college students.

Information on the areas of motivation, creativity, interests, values, and attitudes has relevance to a student's choice of an educational or vocational goal and to the degree of success that student might expect in any chosen undertaking (Seibel, 1967).

The scales constructed and titled the Community College Motivation Inventory (CCMI) were devised to have special relevance to the educational and counseling objectives of the community colleges.

None of the previously available instruments was especially developed for community college populations, although many fine tests are available for measure of non-cognitive factors in the general population and at the four-year college level (e.g., the California Psychological Inventory and the Omnibus Personality Inventory).

The newly revised Strong blank by Campbell (1974) may become an important tool for vocational counseling of community college students. Although many nonprofessional scales have been added (in the merged form), the revised blank was not constructed expressly for use in the community college.

The Omnibus Personality Inventory (OPI), authored by Heist and Yonge (revised 1968), is a quality instrument for studying characteristics of students in four-year institutions. As is the case with any measuring instrument, the OPI leaves something to be desired--especially when used, often as it is, in the community college. The test items do not seem especially appropriate in terms of parlance used by currently enrolled community college students. The testing time needed to take the test is considerable. Insistence by the authors on such high levels of Kuder-Richardson reliability for the scales had the unfortunate effect of limiting the scope and functional validity of the scales. Additionally, the fourteen scales of the inventory are highly intercorrelated (Heist & Yonge, p. 50); thus, consolidation of underlying factors of the instrument could have reduced the number of scales.

One of the best tests for assessing personality characteristics deemed to be important for social living and social interaction has proved to be the California Psychological Inventory (CPI) developed by Gough (1957, revised 1964, 1969). The CPI also presents some problems (in our experience) when used at the community college level. One of these stems from the nature of the test items: approximately half of them are from the Minnesota Multiphasic Personality Inventory (MMPI) by Hathaway and McKinley (1951). Thus, adverse perceptual selectivity on the respondent's part may detract from the usefulness of the CPI scales for use with community college students. One also has doubts about the validity of the normative data for use with community college students; at our college, one seldom sees a standard score on the So (Socialization) scale that is above the mean for the CPI normative sample.

Vernon (1964) proposed a number of characteristics which he believes a useful test should possess. The aim should be to provide, he states, a well-normed framework of basic motives rather than to pinpoint specific

preferences. It should be a group test covering a limited number of variables in order to yield fairly reliable scores in a brief time. The items should be meaningful to, and give consistent results with, older secondary students and young adults of both sexes (about 15 to 24 years).

A test manual is not the place for an extended discussion of the theoretical bases of an inventory. The reader desiring such information about the CCMI should consult previous reports by the writer (Caughren, 1972, 1975, 1977). Suffice it to say here that a typology of motivation was devised after a review of the psychological literature concerned with theories of personality (Barron, 1963; Centers & Bugental, 1966; Maslow, 1954; Rogers, 1961; Sullivan, 1953; Syngg & Combs, 1949); the relationship between motivation and the world of work (Berdie, 1951; Centers, 1948; Galler, 1951; Herzberg, Mausner, & Synderman, 1959; Roe, 1957; Roe & Siegelman, 1964; Super, 1957); and some of my own notions of which variables should be salient in a community college setting.[1]

The three main areas of motivational content underlying the conceptualization of the CCMI were the following: (a) instrinsic vs. practical, action-oriented needs; (b) status-seeking motives; and (c) group vs. one-to-one interpersonal relations.

A typology of motivation, based on a three-factor interaction of the aforementioned areas of motivation, was formulated. The three factors then were scaled and titled Intrinsic Motivation (IM), Self

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[1]For the most readily available discussion of the rationale underlying the conceptualization of CCMI variables see Caughren (1975).

Enhancement (SE), and Person Orientation (PO). From this three-scale schema of motivation, eight sub-factors or "types" of motivational structure are produced. These eight categories of motivational types are graphically presented below.

	High Intrinsic Motivation		*Low Intrinsic Motivation*	
High Self Enhancement	*High Person Orientation (I)*	*Low Person Orientation (II)*	*High Person Orientation (III)*	*Low Person Orientation (IV)*
Low Self Enhancement	*High Person Orientation (V)*	*Low Person Orientation (VI)*	*High Person Orientation (VII)*	*Low Person Orientation (VIII)*

Recognizing the tentative nature of descriptions of the eight categories of motivation, only two of them will be discussed briefly here: Types III and VI. (The clinically-oriented reader is invited to formulate similar descriptive statements for these and other subtypes.)

Description of a Type III individual (low IM, high SE, high PO) would include statements suggesting a practical approach to life; strong need for social acceptance and approbation, including somewhat inflexible and rather

conventional attitudes; with a concurrent strong preference for group rather than one-to-one interpersonal relationships.

Consider now the inverse category (Type VI): high IM, low SE, low PO. This individual--intellectually and intrinsically motivated--has a highly developed sense or feeling for the esthetic episodes in life; has considerable psychological flexibility; and prefers one-to-one (often "deep" and meaningful) interpersonal relationships.

Preliminary evidence suggests that students can make good use (if they are imaginative and creative enough) of the sub-typings of motivation proposed.

The test interpreter who uses the CCMI should find the typology useful when interpreting test results to an individual. Flexible use of the schema for identification of motivational subtype of the individual may answer partially one of the most important questions a person can ask, namely, "What kind of person am I, really?"

As measure of the likelihood the person will be able to actualize whatever motivational structure has been identified by use of the typology, the Goal-Deficiency (GD) scale of the Inventory should aid the test interpreter of the CCMI. As the name of this scale implies, high scorers on GD are experiencing "motivational" difficulties to a greater degree than are low scorers. In its own right, the Goal-deficiency scale, when the CCMI is administered at different points in the counseling or therapeutic process, should help chart the course of client "movement."

A first step has been taken toward the construction of scales the intent of which is to assess test-taking attitudes of individuals administered the Inventory. The result has been the preliminary development of a scale titled the Infrequent Response (IR) scale.

The final scale--the sixth--to be discussed in this version of the Manual for the Community College Motivation Inventory is the Sex Differentiation (SD) scale.

A general description of each of the six scales of the Inventory offers researchers and other users of the experimental scales information which is of a statistical nature--as well as interpretive. (The scales will be presented in the order in which they appear on the CCMI profile sheet.) Description of the procedures used to construct the scales will follow in a later section.

II. THE SCALES

Infrequent Response (IR)

High scores on the IR scale identify those persons whose answers to the CCMI booklet items have little commonality with others in the normative sample.

The items are varied in content. Several subclusters of items, however, appear to reflect the following: denial of intellectual interests; anti-social attitudes; unconventionality; cantankerousness; and, generally, antipathy toward self-actualization.

Intrinsic Motivation (IM)

High scorers are effective, intellectually predisposed individuals; they are independent, creative; and, since they seek challenging and ambiguous contexts, their motives are mostly intrinsic. In addition to liking to learn for its own sake, they need to involve themselves in cultural, musical, and artistic activities.

Low scorers are practical people who prefer stable, action-type activities. Since non-intellectual interests are frequently personality components of persons scoring low, economic considerations and other extrinsic rewards are important to them. They are likely to be attracted to and succeed in college majors that are more practical than abstract and theoretical.

Self Enhancement (SE)

Highs have more than average need for prestige, success, self-esteem. They are hard-working, appreciative of those things for which they have worked so hard, and they are likely to finish whatever tasks they start.

They are robust, "socialized" individuals who are free from bodily complaints and feelings of social alienation. Very high scorers, through a somewhat rigid conformance, will persist in situations (except where independence or autonomy is favored behavior) until they attain their goals.

Low scores on SF reflect little concern for prestige or status. Very low scorers, in fact, are rebellious and have a tendency toward non-conformity. Lows are flexible and autonomous persons; they often have artistic or scientific interests. Their achievement mode, in contrast to the high scorers, is via independence rather than by conformance.

Person Orientation (PO)

High scorers on this measure are socially effective, person-directed individuals. They are at ease in social situations: They are not bashful or shy when introduced to others; they prefer to work with people rather than to work alone; they enjoy group situations. Highs are socialized persons who have relatively few psychological "problems." They enjoy life.

Low scorers are inner-directed people. They do not like group situations. With respect to the world of work domain, they prefer to work alone--or with one person at a time. Low scores reflect introversion.

Goal-Deficiency (GD)

High scorers admit to feelings of inadequacy, depression, and anxiety. They are intrapunitive and "sensitive" persons. They are often inconsistent in their expression of hostility and aggression; they lack confidence in themselves and others; they have experienced considerable difficulties in home and family background situations. They have major problems in the area of motivation- and goal-setting difficulties.

Sex Differentiation (SD)

High scorers on this measure have "nurturant" and esthetic interests--similar to nurses, social workers, English teachers, musicians.

Low scorers ("masculine") are likely to have interests in problem-solving (computer science), physical education, and occupations more likely to be practical than esthetic.

III. DEVELOPMENT OF SCALES

General Background

The general method for the development of the four basic scales of the Inventory (that is, IM, SE, PO, And GD) was to obtain a set of homogeneous items identified as a purported measure of each of the three aforementioned areas of motivational structure and of the individual's current tendency to function with respect to goal-attaining behavior. (The Infrequent Response scale and Sex Differentiation scale were constructed by use of different procedures, and they will be discussed later.)

Construction of the four basic scales began when the test author assembled a pool of more than 450 items that seemed (on an a priori basis) suitable for allocation into preliminary clusters for measure of each of the factors to be scaled. The items had been extracted from autobiographies of 176 students who had participated in an earlier study conducted by the writer (Caughren, 1965). Repetitious items were culled from this pool to produce 300 items.

Six judges, working independently, allocated the 300 items into preliminary clusters. An arbitrary criterion of two-thirds agreement among the judges with respect to both content and scoring direction (true or false) was adopted for assembling items into preliminary scales. Then these four scales were reconstituted according to point-biserial correlation until cluster stability was achieved.

The procedure adopted for these four scales sought to combine construct validity, as determined by clinical assissment, with statistical analysis of item content.

The scales were reconstituted four times on a sample of 346 males enrolled in four community colleges. The final (fifth) reconstruction was performed by "purifying" the four scales on each of two separate samples: one of 182 males; the other, 194 females. For construction and purification of the scales, 7,200 point-biserial coefficients were computed. The following criteria were used for item selection:

1. An item will be selected (or retained in the cluster) for reconstruction if its t-ratio is significant at the .001 level.

2. The item must have highest correlation with that cluster for which it is selected for reconstitution.

3. An item having approximately equal correlation with another cluster will not be selected for reconstruction of a scale.

4. The item may be selected for only one of the four scales to be constructed.

The purification step of reconstruction, which concluded development of these four new experimental scales, yielded 200 items for the CCMI test booklet.

Background of Additional Scales

The Infrequent Response scale is a measure developed from items identified because they were so infrequently endorsed by the normative sample. As such, the IR scale is, fundamentally, a statistical scale. Specifically, the procedure was to identify, for the sample of 650 males, those items which were endorsed by them with less than ten per cent frequency; these items were then refined or purified by retaining items which "held up" in the sample of 649 females.

The procedure described above yielded 20 purified items which constitute the present version of the IR scale. The items are assigned unit weights (0-1) in the direction of "infrequency"; in other words, the highest possible raw score on the Infrequent Response scale is 20 points.

The SD scale was constructed by selecting those items that discriminated males from females in the normative samples referred to earlier.

Thirty-three items were identified for measure of the masculinity-femininity dimension and titled the Sex Differentiation scale of the CCMI. The items are scored in the direction of "femininity."

The rationale for the development of the Sex Differentiation scale is that similar measures in other instruments attest to the value of this or similar dimensions of personality for appraisal and counseling purposes (both personal and vocational).

In the following section statistical information is presented that is concerned with the reliability, intercorrelations, and validities of the scales of the Inventory.

IV. STATISTICAL INFORMATION

Data were analyzed, mainly for the four basic scales of the Inventory, and will be presented with respect to the following questions: (a) Are the scales stable over intervals of time (test-retest)? (b) Do the scales possess a reasonable degree of internal consistency (split-half)? (c) Are the scales relatively independent of one another (inter-correlations)? and (d) Do the scales appear to have sufficient validity for use in a community college setting (concurrent and construct validity)?

Retest Reliability

A sample of 56 males and females in two psychology classes, not used in the construction of the scales, provided estimates of stability with which individuals maintain their relative positions on the scales when tested a second time (six weeks between test administration). Based on this sample, the following coefficients (Pearsonian *r*'s) were obtained: Intrinsic Motivation, .91; Self Enhancement, .88; Person Orientation, .92; and Goal-Deficiency, .90. Although the scales were found to have satisfactory retest reliability, further studies of this nature using larger samples are needed.

Internal Consistency

The estimates of internal consistency (split-half correlations), because they are based on a relatively large sample of males and females (*N* = 834), are more stable than the retest reliability coefficients.

This independent sample was composed of students tested at the beginning of the fall 1972 session. The computed coefficients (corrected by the Spearman-Brown formula) were: Intrinsic Motivation, .84; Self Enhancement, .83; Person Orientation, .86; and Goal-Deficiency, .87. Under this phase of the research, preliminary evidence suggests that each scale appears to be a measure of a generalized, homogeneous attribute or factor.

Independence of Selected CCMI Scales

Table I shows the product-moment r's (intercorrelations) among the scales for the normative groups of 650 males and 649 females.

Table I

Intercorrelations Between the Four Basic Scales of the Community College Motivation Inventory

Scales	IM	SE	PO	GD
Intrinsic Motivation (IM)		.15	.17	-.17
Self Enhancement (SE)	.04		.31	-.01
Person Orientation (PO)	.04	.17		-.31
Goal-Deficiency (GD)	-.18	-.04	-.36	

Note: The r's above the diagonal are for N = 650 males; below, N = 649 females.

As an additional check of the independence of the scales, another sample consisting of 798 males and 838 females who entered college during the 1972-74 academic terms was used. Table 2 presents these data.

Table 2

Intercorrelations Between the Four Basic CCMI Scales for a Sample of 1972-74 Entering College Students

Scales	IM	SE	PO	GD
Intrinsic Motivation (IM)		.13	.18	-.27
Self Enhancement (SE)	.16		.29	-.05
Person Orientation (PO)	.12	.19		-.31
Goal-Deficiency (GD)	-.24	-.06	-.38	

Note: The r's above the diagonal are for N = 798 males; below, N = 838 females.

The scales appear relatively independent of one another; a moderately high degree of inverse relationship was found, however, between the Person Orientation scale and the Goal-Deficiency scale. Since it has been repeatedly found that anti-social individuals are often personally maladjusted, this correlation makes sense in terms of construct validity. It was recognized at the outset that a compromise would be necessary between orthogonality of variables and their relationship with important environmental presses.

A factor which contributes to low scale intercorrelation derives from the stipulation that an item would be selected for only one of the (basic) scales. (There is item overlapping, however, between the basic scales and the Infrequent Response scale and the Sex Differentiation scale.)

Validity

The validation of a new psychometric instrument is not a simple matter. The existing evidence of validation for the CCMI scales is, at present, minimal. What validational information is currently available is presented (mainly) in the appendixes and consists of correlations found between the scales of the CCMI and those of other instruments. Conspicuously absent in this first published version of the Manual is much needed information which gives mean scores of relatively well-defined groups.

Recognizing that content validity is ancillary to more substantive evidence of test validity, a few items from each scale, nevertheless, should give some idea of the nature of the individual scales. A few sample items from each of the CCMI scales, including the new additional scales (IR and SD), are shown below.

Infrequent Response (IR) Sample Items:

"I am trying to better myself as a person." (False)

"I hate practically all forms of art." (True)

"I don't have any faults I know about." (True)

"I try to treat everyone with the respect due him." (False)

Intrinsic Motivation (IM) Sample Items:

"Creative writing appeals to me." (True)

"I would rather go bowling than read a good book." (False)

"I don't like complicated discussions." (False)

"If it were possible, I would like to sleep only a few hours per day, so that I could spend the remaining hours accomplishing something original." (True)

Self Enhancement (SE) Sample Items:

"I am a lazy person." (False)

"I want to do something that will make people proud of me." (True)

"I usually try my best to succeed." (True)

"Someday I hope to hold a responsible place in the community." (True)

Person Orientation (PO) Sample Items:

"I am not a socially outgoing person." (False)

"I have few friends." (False)

"It takes me quite a while to feel at ease with a group of people new to me." (False)

"I enjoy being around people." (True)

Goal-Deficiency (GD) Sample Items:

"I worry over little things." (True)

"Sometimes I'm afraid I won't make the grade." (True)

"I had to look outside my home for the attention I thought I needed when I was growing up." (True)

"I lack motivation." (True)

Sex Differentiation (SD) Sample Items:

"I like to read poetry." (True)

"On the sports field, I feel pretty aggressive." (False)

"I would rather see a good play than go to the movies." (True)

"I spend a lot of time watching sports on television." (False)

Concurrent validity of the CCMI consists of early attempts to evaluate correlations between scales and other inventories and tests in current use. Our scales were correlated with those of the CPI, OPI, MMPI, SVIB (Men's Form T399; Women's Form T398), and other tests. Correlates of these and related kinds of data are the basis for the remaining portion of this section of the Manual.

Infrequent Responce (IR) Scale--20 Items:

Statistically speaking, chances of the respondent answering any one of the 20 items of the scale in the direction scored ("infrequent") is one in ten. In view of this, a raw score total on IR--say, four or more--may indicate invalidity of test results.

The scale was included with the other CCMI scales in this version of the Manual as a check on an aspect of test-taking attitudes of respondents to the 200 items in the test booklet.

Since the items of IR were selected because they were rarely endorsed by subjects in the normative groups, high scores reflect carelessness, unconventional attitudes, a mental set directed toward deliberate falsification of test results. At any rate, CCMI test results of a high scorer on this scale should be viewed with special care.

The distribution of scores of the IR scale is highly skewed (positively). A respondent's most likely score is zero or one significant response on the scale. Because of the scale's extreme skewedness, one would expect to find relatively few significant correlates with other scales (see Appendix A, Table 3), low test reliability, and low internal consistency reliability.

In terms of all these features, the IR scale is without doubt the weakest scale in the Inventory. The scale has been found to have no significant correlates with the Strong scales in a sample of 147 female nursing program applicants (Table 3). At present, the IR scale should be used (if at all) for the purpose it was intended: to serve as a quick check on test-taking attitudes of the respondent.

Intrinsic Motivation (IM) Scale--52 Items:

The Intrinsic Motivation scale is one of the best scales in the Inventory. High scorers on this measure have a rational, esthetic approach to life. They are highly verbal persons who like intellectual, creative situations. In addition to being psychologically-minded, they respond in altruistic ways to others.

Low scorers (below, say, standard score 40) on IM are practical, realistic persons.

Based on a sample of students entering college in 1971 (152 males and 170 females), School and College Ability Tests (SCAT) correlates for the four basic CCMI scales were obtained. The IM scale had the following SCAT correlates: for the Verbal (V) scale, the association for males was .54; for females, .44. Thus, it appears that the Intrinsic Motivation scale not only betokens interest in verbal-linguistic activities but also aptitude for such endeavors.

Strong Vocational Interest Blank correlates were obtained for the four standard scales of the CCMI on a sample of 108 males and 102 females (Tables 4 through 11). Male correlates were found significant (.01 level adopted) for 27 of the 54 SVIB scales. For the females, the number of significant correlates (42 of 58 of the scales on the Women's Form) were significant.

In keeping with the theory of the Intrinsic Motivation scale, highest positive correlates for males (Table 4) were for SVIB scales which reflect cultural, humanitarian, and esthetic interests (e.g., Psychiatrist, Minister, Librarian, Psychologist, Social Worker); highest negative r's were for Strong Interest Blank scales which reflect practical and economic interest (Printer, Purchasing Agent, Banker, Pharmacist, Farmer).

The female correlates of SVIB (72 per cent of Women's scales found significant) appear to reflect--even more than the male correlates--the item content of IM (see Table 7). This finding suggests that IM has special relevance for vocational counseling of women. Female correlates closely correspond, for example, to IM subclusters of items identified as verbal-linguistic, artistic, music, drama, creative performance, and so on.

The "stair-stepping" of both male and female Strong correlates of the Intrinsic Motivation scale compares well with what is known about occupational groups.

The correlations between IM and the California Psychological Inventory are all, with the exception of the Socialization (So) scale, in the positive direction (Table 12). Highest correlates: Dominance (Do), .46; Capacity for Status (Cs), .50; and Intellectual Efficiency (Ie), .40.

The single negative correlate of the CPI (-.19 for Socialization) is interesting, since Gough (1965) states that there is an important social criterion on which persons with lower So scores excell--in the area of creativity.

OPI correlates (Table 13) are among the highest reported for IM. Especially noteworthy are the correlations between IM and three of the four primary scales of the OPI's Intellectual Disposition Categories (IDC's), a set of related scales to assess a syndrome of intellectual interests or the potential for behaving intellectually. These OPI correlates are: .65 for Thinking Introversion (TI); .42 for Theoretical Orientation (TO); and .63 for Estheticism (Es).

The correlation of .49 between IM and Response Bias (RB) of the OPI suggests (bolstered by IM's positive correlations with the CPI scales, in general) that high scorers on the Intrinsic Motivation scale are persons who typically are socially ascendant, prudent, and cautious.

Only one scale of the Edwards Personal Preference Schedule (EPPS), developed by Allen L. Edwards (1959), had appreciable correlation (.39) with IM namely, the Achievement (Ach) scale. (See Table 15.)

Self Enhancement (SE) Scale--52 Items:

High scorers are robust, socialized persons who tend to be achievement-oriented and status-conscious. They like stable situations in which they are likely to compete well with others in group-oriented contexts.

Low scorers are characterized by independence, verbal-linguistic tendencies, and an appreciation of situations which are not clearly defined or structured.

SVIB correlates of the SE scale (Tables 5 and 8) denote economic interests and concern with personal status (CPA Owner, Accountant, Public Administrator, Office Worker). Negative correlates: Music Performer, Artist, Interior Decorator, Translator.

The highest degree of relationship between SE and the CPI (Table 12) is the r of -.54 for association between the scale and Flexibility (Fx).

An interesting relationship between SE and the two achievement scales of the CPI turned up. These correlates are .35 for Achievement via Conformance (A_c), but -.35 for Achievement via Independence (A_i).

A further suggestion that persons who score low on the Self Enhancement scale tend toward independence and non-conformance is the correlate of -.52 for the Autonomy (Au) scale of the OPI (Table 13). The practicality often seen in high scorers on SE is corroborated by the scale's correlation (.40) with the Practical Orientation scale of the OPI and the negative r (-.37) for the Edwards' scale title Autonomy (Aut) (Table 15).

Person Orientation (PO) Scale-47 Items:

This scale assesses motivation toward group association in altruistic or profit-motive contexts.

Low scorers prefer to work alone. They tend to be logical persons who have goals that are directed often toward professional and scientific occupations.

The preliminary data for both men and women suggest that counselor use of the two-scale interaction of the PO and IM scales is especially

useful in vocational counseling.

Strong correlates of PO suggest group interaction, social uplift, and business interest (YMCA Staff Member, Community Recreation Administrator, Recreation Worker, Guidance Counselor).

Significant negative correlates: Engineering, Physical Sciences, Mathematician. Also: Printer, Farmer, Carpenter.

Not surprisingly, the highest CPI correlate of the Person Orientation scale was Gough's S_y (Sociability) scale: .71. The correlation of .85 between PO and the OPI's Social Extroversion scale and the r of -.74 between PO and the Social Introversion (Si) scale of the MMPI (Table 14) further attest to the person-directed nature of the PO scale.

Goal-Deficiency (GD) Scale--49 Items:

High scorers on GD lack a sense of well-being; they are intrapunitive and dependent; and they feel inadequate (feelings of impotence in social and educational contexts).

Low scores on GD, on the other hand, reject items which express anxiety and depression. They are usually able to attain goals set for themselves.

With respect to the SVIB, the Goal-Deficiency scale has almost no relationship. The only significant correlate found for a sample of 102 females (Table 11) was a r of .30 for Army Officer. For the female nursing sample (Table 3) there were some low-order significant relationships. What this suggests is that the Goal-Deficiency scale does not assess individual interest and motive; it measures, rather, the person's mood and level of present functioning.

MMPI correlates (Table 14) which appear to reflect the mood nature of GD are these: .66 for the A (Anxiety) scale; .39 for D (Depression) scale; .62 for the Dy (Dependency) scale; .48 for the Sc (Schizophrenia) scale; and .50 for Social Introversion (Si). The clinical picture of the high scorer on GD is one suggesting social inadequacy, anxiety and depression, ineffectuality, social alienation and introversion. The opposite personality attributes obtain for the low scorer on GD.

Sex Differentiation (SD) Scale--33 Items:

The scale most recently added to the Inventory is the SD scale.

Relatively speaking, little is known about this scale. The SD scale was found, however, to have a retest reliability of .82 based on the 56 subjects used for retest reliabilities of the four basic scales.

The correlates of the SD scale (Table 3) reflect a tendency of the high scorer to exhibit what are usually referred to in our culture as "feminine" interests. These interests are often described as esthetic (Music Teacher, English Teacher, Librarian); others suggest nurturant interests such as Guidance Counselor, Social Worker, and Registered Nurse.

Low scorers ("masculine") have interest in problem-solving, science, physical education, and engineering.

V. INTERPRETATION OF THE INVENTORY

As implied in the foregoing sections, each of the basic CCMI scales has been titled to reflect that area of motivation for which it was developed. Discussed in this section are: (1) definitions and meanings of high and low scores of the individual scales; (2) some inferences which can be drawn from interactions among scales; and (3) illustrations of overall profile interpretation.

The name of a scale gives the first hint to a scale's meaning. The name of each CCMI scale has been carefully chosen to reflect, as nearly as possible, the nature of the scale. The Person Orientation scale, for example, was so named because the high scorer on PO manifests behavior which is found to be compatible with person-directed orientation.

A test author is also aided in the selection of a name of a scale by clinical observation (over a reasonable period of time) of subjects who score high and low on a measure. Information pertaining to mean scores of persons composing known groups is also helpful. (Unfortunately, in the case of our Inventory, we do not have as yet much information of this type.) Correlations among the scales of a test and those of other well-known instruments are of further assistance. Names of scales are especially important when tests are constructed by "internal consistency" and factor analytic methods.

Interaction Among Scales

Although it is meaningful to interpet high and low scores on a single scale of an inventory, the researcher or counselor usually

interprets results on two mor more scales simultaneously to enrich the interpretation.

Since the scales of the Inventory usually intercorrelate at a low level of association, many individuals will score above average on one scale and below on another. Consider the two-scale interaction of IM and PO.

From the "interactional" viewpoint, four possibilities exist: (a) scoring high on both scales; (b) scoring high on IM, but low on PO; (c) scoring low on IM, but high on PO; and (d) scoring low on both scales.

The listing below gives an example of how theory of these two scales and preliminary research evidence suggest interests are related to the two-scale interaction of IM and PO.

Strong Interest Scales

IM high

PO low	PO high
Physician	Social Worker
Chemist	Public Administrator
Biologist	Music Teacher
Instrument Assembler	Business Education Teacher
Carpenter	Saleswoman
Farmer	Life Insurance Salesman

IM low

The above two-scale interaction (with its empirically derived SVIB correlates) appears reasonable when one considers correlates of each of the two scales, separately.

In the counseling-therapy domain, the three-scale interaction of IM, PO, and GD often identifies individuals who are, at a particular point in time, psychologically distressed and who would be good candidates for counseling.

As said earlier, the Goal-Deficiency scale is a mood scale, largely reflecting the person's feelings of self-worth. For individuals scoring high on GD, the assumption is that the person (as clinicians say) has "enough anxiety to work with."

Only when the individual's scores on both PO and IM are taken into account, however, can we hypothesize (a) what type of therapeutic approach is likely to be most appropriate, and (b) whether the person's verbal level is sufficient enough to produce desired results.

Experience with the above three-scale interaction in the counseling domain suggests that one-to-one (individual) counseling or therapy is indicated for high IM, low PO, high GD clients. These counselees are described as (a) verbally facile, (b) introverted, and (c) anxious and depressed. (The greater the disparity between the low PO score and the high GD score, the more likely that one-to-one (rather than group) counseling will be the appropriate mode of treatment. On the other hand, when the three-way interaction is characterized by a high, rather than low, PO score, group therapy should be less threatening than individual counseling to the client.

Additional Uses and Research Possibilities

Research studies are currently being undertaken in a variety of areas related to the educational and counseling needs of community colleges. The typology of motivation proposed, which is essentially a 2 X 2 X 2 factorial design or schema, should be of interest to researchers and to instructors of vocational education classes. By use of the CCMI and the schema of motivation, eight subtypes of community college students can be identified; tentative identification with a particular subtype of motivation should be useful for facilitating exploratory vocational behavior.

Studies could be designed to investigate motivational and personality changes which occur in students as part of their academic progress.

Another research focus should be directed at the extent to which non-cognitive variables--such as those presumably measured by the CCMI--are involved in the process of choosing a college major.

The new instrument should prove useful in studies designed to assess factors related to success or failure in college.

Implications for use of the Inventory (especially the Goal-Deficiency scale and the Intrinsic Motivation scale) for identification and description of student motivational patterns in a college's tutorial and learning laboratory programs seems obvious.

As a quick-screening device, the Goal-Deficiency scale has been found useful for identifying students too beset with problems to be efficient. Utility of a GD-PO Index should be evaluated.

The CCMI could be used to study the interactive effect between mode of instruction (e.g., regular lecture approach vs. programmed-materials approach) and "type" of student (e.g., "independent" vs. "dependent") on achievement.

Many more studies could be advanced, but those described above should indicate how the new instrument can be used in the community college setting. It should be cautioned, however, that the CCMI is still experimental and incomplete, and that validation is sketchy. Nevertheless, preliminary findings indicate that the Community College Motivation Inventory has technical promise as a measuring instrument. It is being made available, therefore, to those who are interested in relating the present scales for counseling and research purposes.

VI. ADMINISTERING AND SCORING THE CCMI

The Community College Motivation Inventory is a relatively short test containing 200 items. It is (largely) self-administering. Instructions for administering the Inventory are given on the front page of the CCMI test booklet.

Administering the CCMI

The testing time is usually less than one hour. Like most inventories of this type, the CCMI can be self-administered and is suitable for group and individual testing.

Reading ability and motivation are important factors to consider when the Inventory is administered. A few of the items may seem "old-fashioned" and could present some difficulty for some students. The examiner should feel free, therefore, to answer questions about the definition of a word or the meaning of certain items which may seem (especially to foreign students) to be bewildering idiomatic expressions. The reading level of the items appears to be, however, about right for community college students. (In a sense, community college students "wrote" the items, since item statements were extracted from the autobiographies written by students at a community college.)

With the machine scoring answer sheets, use of a soft lead (#2) pencil is recommended. For hand-scoring (with six scoring keys), any pencil or pen is adequate.

The CCMI has been tried under various test-taking conditions. Insofar as could be determined, satisfactory results (with respect to reliability and validity) can be obtained under a variety of conditions: standardized

(ideally) individual sessions, "take home" plans, and mail-out/mail-back.

The respondent answers the items of the CCMI with either "true" or "false," depending on whether the statements seem mostly true or false as they apply to the individual.

Raw scores (the number of items answered in the scored direction) for each scale are converted to standard scores. For each scale the standard score mean is 50 with a standard deviation of 10 standard points. (See Appendixes B and C.)

Preliminary norms for the Community College Motivation Inventory were developed from two fairly large sex-separate samples for the basic scales. Norms are in process of construction for the Infrequent Response scale and the Sex Differentiation scale.

Acknowledging that the standardization samples are, at present, far from satisfactory (nonexistent for IR and SD), researchers are encouraged to share their test data. (Raw score means and standard deviations will be appreciatively received.)

Sex differences on the four primary scales of the Inventory were examined by statistical analysis. It was found that only on the Intrinsic Motivation scale was there statistical difference between the sexes. Since division by sex of the normative groups yield two rather large subsamples (N = 650 males; N = 649 females), the practical significance with respect to sex difference, even on the IM scale, is minimal. (When more representative norms, based on larger numbers of students are obtained, sex difference between scores of males and females should be found to be sizeable on the Sex Differentiation scale.)

In the absence of evidence to the contrary, it may be justifiable later to combine the present sex-separate normative groups into a single composite normative sample (as was the case with the OPI).

Norms for the CCMI are presented as standard scores. (The standard scores have a mean of 50 and a standard deviation of 10.) Raw scores for an individual are converted to standard scores for the four basic CCMI scales by referring to Appendixes B and C. (Norms have not yet been developed for IR and SD.) The procedure for each scale is to locate the raw score in the column at the left, then follow across to the column for the appropriate scale to find the equivalent standard score.

Item identification (item content) is shown in Appendix D.

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APPENDIX A

VALIDATION DATA

Correlations with Other Inventories

Underlined values in all tables are significant at the .01 level or better.

Table 3

Correlations Between the CCMI and Selected Scales of the SVIB for a Sample of Nursing Program Applicants

(N = 147 Females)

SVIB	Community College Motivation Inventory					
	IR	IM	SE	PO	GD	SD
Music Teacher	-.10	.45	.20	.28	.05	.31
Entertainer	-.01	.44	-.18	.03	.12	.08
Music Performer	-.03	.54	-.17	.07	.03	.21
Art Teacher	-.06	.55	-.20	-.02	.02	.19
Artist	.07	.11	-.36	-.31	.04	-.09
Interior Decorator	.06	.32	-.32	-.14	.08	.05
Newswoman	.13	.40	-.29	.00	-.11	.09
English Teacher	.06	.54	.00	.27	-.05	.29
Language Teacher	.01	.46	-.08	.12	.01	.27

Table 3 (cont.)

SVIB	Community College Motivation Inventory IR	IM	SE	PO	GD	SD
YWCA Staff Member	-.02	.52	.14	.47	-.09	.21
Recreation Leader	-.08	.41	.33	.52	-.06	.18
Director Christian Ed.	-.08	.41	.25	.39	-.06	.24
Guidance Counselor	-.03	.42	.30	.46	-.11	.21
Social Science Teacher	.04	.39	.17	.38	-.08	.19
Social Worker	.00	.37	.10	.35	-.16	.20
Speech Pathologist	.04	.51	-.11	.19	-.25	.17
Psychologist	.07	.53	-.25	.01	-.17	.07
Librarian	.09	.50	-.24	.05	-.17	.32
Translator	.09	.35	-.35	-.15	-.12	.00
Physician	-.01	.30	-.23	-.10	-.25	.01
Dentist	.00	-.11	-.17	-.26	-.19	-.08
Chemist	-.02	.25	-.12	-.10	-.29	.00
Mathematician	.06	.06	-.34	-.30	-.19	-.06
Computer Programmer	.08	-.03	-.12	-.29	.04	-.33
Math-Science Teacher	-.04	-.40	.19	-.10	-.07	-.17
Army Enlisted	.01	-.30	.20	.03	-.02	-.12
Navy Enlisted	.01	-.55	.01	-.21	-.01	-.29

Table 3 (cont.)

SVIB	Community College Motivation Inventory					
	IR	IM	SE	PO	GD	SD
Lawyer	.10	.36	-.03	.22	-.18	.05
Bankwoman	.00	-.35	.33	.11	.10	-.05
Life Ins. Underwriter	.02	.07	.27	.32	.02	-.02
Buyer	-.06	-.27	.41	.04	.05	-.12
Bus. Ed. Teacher	.00	-.35	.32	.14	.11	-.02
Home Economics Teacher	-.16	.09	.26	.23	.16	.12
Dietitian	-.14	.19	.30	.33	-.06	.13
Physical Ed. Teacher	-.14	-.37	.28	.09	-.03	-.24
Occupational Therapist	-.11	.50	-.03	.15	.01	.18
Registered Nurse	-.17	.15	.18	.29	-.07	.21
Lic. Practical Nurse	-.10	-.21	.34	.16	-.01	.07
Radiological Tech.	-.08	-.35	.16	-.08	-.05	-.17
Dental Assistant	-.08	-.44	.36	.13	.08	-.07
Executive Housekeeper	-.09	-.14	.39	.22	.04	.10
Elementary Teacher	-.07	.01	.29	.20	.11	.18
Secretary	-.03	-.46	.26	.00	.24	-.10
Saleswoman	-.02	-.33	.31	.08	.17	.01
Telephone Operator	-.02	-.43	.26	.04	.20	-.01
Instrument Assembler	.03	-.66	.10	-.23	.16	-.28
Sewing Machine Operator	-.03	-.58	.21	-.13	.17	-.14
Beautician	-.05	-.63	.13	-.13	.21	-.23
Airline Stewardess	-.06	.25	.29	.32	.23	.01

Table 4

Correlations Between the Intrinsic Motivation (IM) Scale and Selected Scales of the SVIB (Men)

(N = 108 Males)

SVIB	r's (positive)	SVIB	r's (negative)
Psychiatrist	.62	Printer	-.58
Minister	.56	Purchasing Agent	-.56
Librarian	.47	Banker	-.53
Psychologist	.46	Veteranarian	-.52
Social Worker	.43	Pharmacist	-.50
Public Administrator	.41	Farmer	-.49
Rehab. Counselor	.39	Real Estate Salesman	-.49
Biologist	.38	Funeral Director	-.48
School Superintendent	.34	Carpenter	-.41
Music Teacher	.30	Sales Manager	-.33
Physical Therapist	.30	Policeman	-.29
Computer Programmer	.28	President, Mfg. Concern	-.28
Physician	.27	Life Insurance Salesman	-.25
Personnel Director	.27		

Table 5

Correlations Between the Self Enhancement (SE) Scale and Selected Scales of the SVIB (Men)

(N = 108 Males)

SVIB	r's (positive)	SVIB	r's (negative)
CPA Owner	.38	Musician Performer	-.34
Accountant	.37	Artist	-.24
Public Administrator	.27	Psychologist	-.17
Office Worker	.26	Physician	-.17
Banker	.23	Architect	-.16
Personnel Director	.22	Author-Journalist	-.15
Credit Manager	.21		
Senior CPA	.21		
President, Mfg. Concern	.21		
Production Manager	.20		
Policeman	.19		
Business Education Teacher	.19		
Purchasing Agent	.18		
School Superintendent	.17		
Sales Manager	.16		

Table 6

Correlations Between the Person Orientation (PO) Scale and Selected Scales of the SVIB (Men)

(N = 108 Males)

SVIB	r's (positive)	SVIB	r's (negative)
YMCA Staff Member	.43	Engineer	-.38
Community Recr. Admin.	.37	Architect	-.35
Chamber Commerce Executive	.34	Chemist	-.34
Credit Manager	.31	Physicist	-.33
Social Science Teacher	.29	Artist	-.29
Life Insurance Salesman	.26	Physician	-.28
Business Ed. Teacher	.25	Mathematician	-.27
Funeral Director	.24	Farmer	-.26
Sales Manager	.23	Carpenter	-.26
School Superintendent	.22	Dentist	-.25
Rehab. Counselor	.21	Biologist	-.24
Social Worker	.21	Psychologist	-.22
Personnel Director	.20	Osteopath	-.17
Policeman	.18	Printer	-.15
Real Estate Salesman	.17		
Music Teacher	.16		
Public Administrator	.15		

Table 7

Correlations Between the Intrinsic Motivation (IM) Scale and Selected Scales of the SVIB (Women)

(N = 102 Females)

SVIB	r's (positive)	SVIB	r's (negative)
English Teacher	.60	Instrument Assembler	-.68
Art Teacher	.58	Sewing Machine Operator	-.64
Librarian	.58	Beautician	-.64
Musician Performer	.58	Navy-Enlisted	-.59
Psychologist	.55	Telephone Operator	-.54
Speech Pathologist	.53	Dental Assistant	-.50
Newswoman	.50	Secretary	-.45
Language Teacher	.49	Physical Educ. Teacher	-.44
YWCA Staff Member	.49	Army-Enlisted	-.43
Lawyer	.48	Saleswoman	-.41
Interior Decorator	.47	Math-Science Teacher	-.40
Music Teacher	.46	Bankwoman	-.38
Translator	.46	Business Educ. Teacher	-.37
Social Science Teacher	.45	Lic. Practical Nurse	-.36
Army Officer	.44	Radiological Tech.	-.34
Guidance Counselor	.44	Exec. Housekeeper	-.26
Social Worker	.44	Buyer	-.18
Occupational Therapist	.43	Computer Programmer	-.18
Entertainer	.41	Elementary Teacher	-.17
Physician	.36		
Recreation Leader	.33		

Table 8

Correlations Between the Self Enhancement (SE) Scale and Selected Scales of the SVIB (Women)

(N = 102 Females)

SVIB	r's (positive)	SVIB	r's (negative)
Guidance Counselor	.44	Artist	-.42
Recreation Leader	.41	Interior Decorator	-.29
Business Educ. Teacher	.38	Translator	-.25
Exec. Housekeeper	.38	Model	-.24
Elementary Teacher	.36	Newswoman	-.23
Bankwoman	.33	Mathematician	-.20
Director, Christian Ed.	.32	Art Teacher	-.20
Social Science Teacher	.32	Navy Officer	-.19
Lic. Practical Nurse	.32	Medical Technologist	-.18
Saleswoman	.31	Entertainer	-.18
Dental Assistant	.28		
YWCA Staff Member	.27		
Army Officer	.27		
Army-Enlisted	.25		
Telephone Operator	.25		
Registered Nurse	.23		
Music Teacher	.21		
Secretary	.20		

Table 9

Correlations Between the Person Orientation (PO) Scale and Selected Scales of the SVIB (Women)

(N = 102 Females)

SVIB	r's (positve)	SVIB	r's (negative)
Recreation Leader	.40	Dentist	-.34
Director, Christian Ed.	.40	Mathematician	-.31
Guidance Counselor	.34	Engineer	-.28
Music Teacher	.31	Computer Programmer	-.27
YWCA Staff Member	.30	Chemist	-.25
Life Insurance Underwriter	.30	Medical Technologist	-.24
Registered Nurse	.28	Translator	-.22
Airline Stewardess	.27	Accountant	-.22
Elementary Teacher	.26	Artist	-.20
Social Science Teacher	.23	Navy Officer	-.19
Social Worker	.22	Navy-Enlisted	-.19
Public Health Nurse	.21	Physician	-.19
Language Teacher	.17	Math-Science Teacher	-.18
Nun-Teacher	.16	Psychologist	-.18
English Teacher	.15		
Home Economics Teacher	.15		
Exec. Housekeeper	.15		
Saleswoman	.15		

Table 10

Correlations Between the Goal-Deficiency (GD) Scale and Selected Scales of the SVIB (Men)

(N = 108 Males)

SVIB	r's (positive)	SVIB	r's (negative)
Music Performer	.23	Rehab. Counselor	-.21
Veterinarian	.20	Public Administrator	-.18
Farmer	.20	CPA Owner	-.17
Architect	.18	School Superintendent	-.17
		Personnel Manager	-.17
		Social Worker	-.16
		Computer Programmer	-.15

Table 11

Correlations Between the Goal-Deficiency (GD) Scale and Selected Scales of the SVIB (Women)

(N = 102 Females)

SVIB	r's (positive)	SVIB	r's (negative)
Army Officer	.30	Life Ins. Underwriter	-.24
Sewing Machine Operator	.20	Guidance Counselor	-.24
Navy-Enlisted	.17	Lawyer	-.22
Beautician	.17	Social Worker	-.22
Telephone Operator	.16	Recreation Leader	-.22
		Social Science Teacher	-.21

Table 12

Correlations Between Selected CCMI Scales and the California Psychological Inventory CPI

(N = 118 Males and Females)

CPI	Community College Motivation Inventory			
	IM	SE	PO	GD
Dominance (Do)	.46	.37	.54	-.37
Capability for Status (Cs)	.50	.01	.25	-.30
Sociability (Sy)	.35	.31	.71	-.37
Social Presence (Sp)	.22	-.04	.49	-.38
Self Acceptance (Sa)	.32	.27	.61	-.31
Sense of Well Being (Wb)	.11	.01	.25	-.59
Responsibility (Re)	.38	.15	.05	-.21
Socialization (So)	-.19	.22	.11	-.20
Self Control (Sc)	.02	-.09	-.16	-.42
Tolerance (To)	.26	-.25	-.04	-.30
Good Impression (Gi)	.20	.10	.15	-.44
Communality (Cm)	.02	.31	.14	-.12
Ach. via Conformance (Ac)	.35	.35	.24	-.47
Ach. via Independence (Ai)	.27	-.35	-.26	-.20
Intellectual Efficiency (Ie)	.40	-.07	.15	-.38
Psychological Mindedness (Py)	.28	-.09	.07	-.47
Flexibility (Fx)	.09	-.54	-.19	-.04
Femininity (Fe)	.13	.13	-.01	.12

Table 13

Correlations Between Selected CCMI Scales and the Omnibus Personality Inventory (OPI) (Form D)

(N = 66 Males and Females)

OPI	Community College Motivation Inventory			
	IM	SE	PO	GD
Thinking Introversion (TI)	.65	.17	.24	-.20
Theoretical Orientation (TO)	.42	.27	.08	-.14
Estheticism (Es)	.63	.15	.30	.00
Complexity (Co)	.18	-.14	.12	-.16
Autonomy (Au)	.10	-.52	-.31	.11
Religious Orientation (RO)	-.10	-.20	-.17	.24
Social Extroversion (SE)	.25	.30	.85	-.19
Impulse Expression (IE)	.22	.07	.27	.18
Personal Integration (PI)	.21	-.03	.32	-.52
Anxiety Level (AL)	.06	-.02	.25	-.59
Altruism (Am)	.33	.05	.50	-.23
Practical Orientation (PO)	-.27	.40	.11	.09
Masculinity-Feminity (MF)	-.23	.06	-.17	-.23
Response Bias (RB)	.49	.45	.28	-.49

Table 14

Correlations Between Selected CCMI and Minnesota Multiphasic Personality Inventory (MMPI) Scales

(N = 113 Males and Females)

MMPI	Community College Motivation Inventory			
	IM	SE	PO	GD
Lie (L)	.04	-.01	.00	-.22
Infrequency (F)	.02	-.06	-.27	.38
K	.01	-.26	.09	-.41
Hypochondriasis (Hs)	-.02	-.07	-.11	.24
Depression (D)	-.01	-.26	-.38	.39
Hysteria (Hy)	.00	-.29	-.16	.13
Psychopathic Deviate (Pd)	.05	-.11	-.22	.37
Masculinity-Femininity (Mf)	.07	-.01	-.09	.08
Paranoia (Pa)	.08	-.03	-.36	.37
Psychasthenia (Pt)	-.01	-.06	-.24	.57
Schizophrenia (Sc)	-.01	-.02	-.18	.48
Hypomania (Ma)	.02	.21	.39	.10
Social Introversion (Si)	-.04	-.25	-.74	.50
Anxiety (A)	-.02	.00	-.27	.66
Repression (R)	-.19	-.32	-.36	-.14
Ego Strength (ES)	.01	-.14	.16	-.44
Low Back Pain (Lb)	-.30	-.26	.06	-.15
Caudality (Ca)	-.09	-.05	-.37	.60
Dependency (Dy)	.02	.04	-.32	.62

Table 15

Correlations Between Selected CCMI and Edwards' Personal Preference Schedule (EPPS) Scales

(N = 118 Males and Females)

EPPS	Community College Motivation Inventory			
	IM	SE	PO	GD
Achievement (Ach)	.39	.21	-.13	.04
Deference (Def)	.01	.13	.08	-.09
Order (Ord)	-.07	.06	-.14	-.03
Exhibition (Exh)	-.03	.00	.23	-.04
Autonomy (Aut)	-.07	-.37	-.12	-.11
Affiliation (Aff)	.12	-.18	.03	.15
Intraception (Int)	.17	.06	.11	-.09
Succorance (Suc)	.00	-.19	-.23	.26
Dominance (Dom)	.28	.26	.33	-.28
Abasement (Aba)	-.30	-.01	-.25	.28
Nurturance (Nur)	-.05	-.13	.01	.07
Change (Chg)	.07	-.13	.04	-.12
Endurance (End)	.05	.26	-.21	-.02
Heterosexuality (Het)	.09	-.10	.24	-.20
Aggression (Agg)	-.06	-.05	.05	.09
Consistency (Con)	.05	-.10	-.07	-.01

APPENDIX B

Standard Scores for Males on Selected CCMI Scales

(N = 650 Males)

Raw Score	IM	SE	PO	GD
52	72	68		
51	70	67		
50	69	65		
49	68	64		80
48	67	63		78
47	65	61	72	77
46	64	60	71	76
45	63	58	70	75
44	61	57	68	74
43	60	55	67	73
42	59	54	66	72
41	58	52	65	71
40	56	51	64	69
39	55	49	62	68
38	54	48	61	67
37	52	47	60	66
36	51	45	59	65
35	49	44	57	64
34	48	42	56	63
33	47	41	55	62
32	46	39	54	61
31	45	38	53	59
30	44	36	51	58
29	42	35	50	57
28	41	34	49	56
27	40	32	48	55
26	38	31	47	54
25	37	29	45	53
24	36	28	44	52
23	34	26	43	50
22	33	25	42	49
21	32	23	40	48
20	31	22	39	47
19	29	21	38	46
18	28	19	37	45
17	27	18	36	44
16	25	16	34	43
15	24	15	33	41
14	23	13	32	40
13	22	12	31	39
12	20	10	30	38
11	19	9	28	37

APPENDIX B (cont.)

Raw Score	IM	SE	PO	GD
10	18	8	27	36
9	16	6	26	35
8	15	5	25	34
7	14	3	23	33
6	13	2	22	31
5	11	0	21	30
4	10	0	20	29
3	9	0	19	28
2	7	0	17	27
1	6	0	16	26
Mean	35.1	39.4	28.9	22.3
S.D.	7.8	6.9	8.2	8.9

APPENDIX C

Standard Scores for Females on Selected CCMI Scales

(N = 649 Females)

Raw Score	IM	SE	PO	GD
52	73	71		
51	71	70		
50	70	68		
49	68	66		81
48	67	65		80
47	65	63	71	79
46	64	62	70	77
45	62	60	69	76
44	61	58	67	75
43	59	57	66	74
42	58	55	65	73
41	56	54	64	72
40	55	52	62	70
39	53	50	61	69
38	52	49	60	68
37	50	47	59	67
36	49	46	57	66
35	47	44	56	65

APPENDIX C (cont.)

Raw Score	IM	SE	PO	GD
34	46	43	55	64
33	44	41	54	62
32	43	39	52	61
31	41	38	51	60
30	40	36	50	59
29	38	35	49	58
28	37	33	47	57
27	36	31	46	56
26	34	30	45	54
25	33	28	44	53
24	31	27	42	52
23	30	25	41	51
22	28	23	40	50
21	27	22	39	49
20	25	20	37	47
19	24	19	36	46
18	22	17	35	45
17	21	16	34	44
16	19	14	32	43
15	18	12	31	42
14	16	11	30	41
13	15	9	29	39
12	13	8	27	38
11	12	6	26	37
10	10	4	25	36
9	9	3	24	35
8	7	1	22	34
7	6	0	21	32
6	4	0	20	31
5	3	0	19	30
4	1	0	17	29
3	0	0	16	28
2	0	0	15	27
1	0	0	14	26
Mean	36.7	38.7	30.1	22.2
S.D.	6.7	6.3	7.9	8.7

APPENDIX D

ITEM IDENTIFICATION--ITEM CONTENT

For each scale in the Inventory, items of the CCMI booklet are listed under scale title. The letter (T or F) following each item indicates the correct scoring for the item.

Infrequent Response (IR):

10. - F	29. - F	65. - F	111. - T	177. - F
11. - F	30. - F	88. - F	113. - F	178. - F
23. - F	43. - F	93. - F	135. - F	188. - F
27. - T	60. - T	101. - F	164. - F	194. - F

Intrinsic Motivation (IM):

2. - T	36. - F	80. - T	111. - F	143. - F
4. - F	39. - F	82. - T	114. - T	172. - T
5. - F	42. - T	83. - T	117. - F	173. - T
7. - T	45. - T	86. - T	122. - T	179. - T
10. - T	55. - T	93. - T	125. - T	181. - F
14. - T	60. - F	95. - T	130. - T	189. - F
16. - T	68. - T	97. - T	131. - T	191. - F
19. - T	70. - T	100. - T	134. - F	198. - F
20. - F	75. - T	102. - T	138. - T	
32. - F	77. - T	103. - F	139. - T	
35. - T	78. - T	107. - T	141. - F	

Self Enhancement (SE):

1. - T	38. - T	89. - T	132. - T	177. - T
9. - T	44. - T	101. - T	135. - T	178. - T
13. - F	49. - T	104. - T	137. - T	180. - T
15. - T	51. - T	105. - F	154. - T	184. - T
23. - T	53. - T	106. - T	159. - T	186. - T
24. - T	62. - T	116. - F	162. - T	187. - F
26. - T	65. - T	118. - T	164. - T	188. - T
29. - T	74. - T	120. - T	166. - T	194. - T
30. - T	79. - F	121. - T	167. - T	
33. - T	81. - T	123. - F	171. - T	
34. - T	88. - T	124. - T	175. - T	

APPENDIX D (cont.)

Person Orientation (PO):

3. - T	43. - T	90. - T	148. - F	190. - F
6. - T	46. - T	91. - F	153. - T	195. - F
8. - F	47. - F	96. - F	155. - F	199. - F
11. - T	54. - F	98. - T	156. - T	
17. - F	57. - T	109. - F	160. - T	
21. - T	63. - T	113. - T	163. - F	
25. - T	67. - T	115. - T	165. - T	
27. - F	71. - F	127. - F	169. - F	
28. - T	73. - F	129. - T	170. - T	
31. - F	76. - F	133. - F	182. - T	
37. - T	87. - T	144. - T	185. - T	

Goal-Deficiency (GD):

12. - T	61. - T	110. - F	149. - T	192. - T
18. - T	64. - T	112. - T	150. - T	193. - T
22. - T	66. - T	119. - T	151. - T	196. - T
40. - T	69. - T	126. - T	152. - F	197. - T
41. - T	72. - T	128. - T	157. - T	200. - T
48. - T	84. - T	136. - T	158. - T	
50. - T	85. - T	140. - T	161. - T	
52. - T	92. - T	142. - T	168. - T	
56. - T	94. - T	145. - T	174. - T	
58. - T	99. - T	146. - T	176. - T	
59. - T	108. - T	147. - T	183. - T	

Sex Differentiation (SD):

3. - T	42. - T	77. - F	115. - T	167. - F
5. - T	47. - F	81. - F	118. - F	172. - T
7. - T	52. - F	82. - T	125. - T	174. - F
16. - T	64. - T	83. - F	130. - T	185. - T
19. - T	67. - T	100. - F	142. - T	186. - F
32. - T	68. - T	102. - T	143. - F	
33. - T	75. - T	104. - T	157. - F	

Intrinsic Motivation (IM)

SCALE I

Scale I contains the items listed below in tentatively formed subclusters. The direction of scoring is given (T) for true and (F) for false. The sample on which the scale was constructed consisted of 346 males tested in four junior colleges during the 1969-71 academic year. The scale was "purified" on a sample of 185 males and on a sample of 195 females, separately.

1. Verbal-cultural

a. Reading and Writing

200-Item Booklet Item #		Averaged r Point-biserial
4.	I am a poor reader. (F)	-.34
7.	I like to read poetry. (T)	.41
10.	I like good books. (T)	.27
16.	I like to write. (T)	.40
42.	I like to read. (T)	.45
78.	Creative writing appeals to me. (T)	.49
102.	I like literature. (T)	.48
103.	I never read anything unless it is required. (F)	-.36
107.	I have been influenced a great deal by the reading I do. (T)	.46

b. Art, Music, and Drama

60.	I hate practically all forms of art. (F)	-.24
68.	I like Broadway musicals, (T)	.28
70.	I like modern jazz. (T)	.18
75.	I like dramatics. (T)	.46
97.	I wish I knew more about modern jazz. (T)	.36
122.	I have a great love of music. (T)	.31

2. Avocational-recreational

19.	I do not like to go hunting. (T)	.20
32.	I would rather go bowling than read a book. (F)	-.42
45.	I like sailing. (T)	.26
83.	I like to play chess. (T)	.28
86.	I like to draw. (T)	.16
130.	I would rather see a good play than go to the movies. (T)	.36
143.	I spend a lot of time watching sports on television. (F)	-.20
172.	I like to cook. (T)	.23

Scale I

3. Intellectual Disposition

14.	I like discussions on intellectual topics. (T)	.38
36.	I don't like complicated conversations. (F)	-.42
117.	I dislike doing mental work. (F)	-.40
173.	I like to study. (T)	.38
189.	I hate science. (F)	-.27
198.	I become easily bored with intellectual tasks. (F)	-.39

4. Creative Performance

55.	I can play a musical instrument. (T)	.19
114.	If I had the talent, I would like to perform as a creative person. (T)	.40
179.	If I had the talent, I would like to perform on the stage. (T)	.37

5. Independence of Judgment, Serious-Mindedness, and Self-Sufficiency

95.	I am a person who tries to think for himself. (T)	.22
131.	I am a serious-minded person. (T)	.31
139.	I'm trying to become self-sufficient. (T)	.28

6. Areas of Work and Job Attitudes

5.	I would rather work with my hands than with my head. (F)	-.27
20.	I prefer work that doesn't require much concentration. (F)	-.34
35.	I would like my work to benefit mankind. (T)	.30
39.	Job security is the most important element in any type of work. (F)	-.34
77.	I would like the work of a lawyer. (T)	.32
80.	I would like to teach. (T)	.36
82.	Enjoying the work you do is a lot more important than how much money you make. (T)	.17
100.	I would like the work of an architect. (T)	.21
141.	I like work that allows you to do pretty much the same thing from one day to the next. (F)	-.24

Scale I

7. Originality, Unconventionality, and Liberated Attitudes

2.	I would rather accomplish something original than make a lot of money. (T)	.25
125.	A married woman should have both a family of her own and a career. (T)	.20
134.	I like my religion and think that it is the only one to have. (F)	-.22
138.	If it were possible, I would like to sleep only a few hours per day, so that I could spend the remaining hours accomplishing something original. (T)	.36

8. Miscellaneous

93.	My interests are varied. (T)	.27
111.	I don't have any faults that I know about. (F)	-.21
181.	I don't have any special interests. (F)	-.28
191	I frequently admire a well-designed table, chair, house, etc. (T)	.30

Self Enhancement (SE)

SCALE II

The items of Scale II of the Motivation Inventory are tentatively identified according to the following subclusters:

1. Self-Enhancement and Achievement

200-Item Booklet Item #		Averaged r Point-biserial
1.	The approval of others means a lot to me. (T)	.30
30.	I hope to make something of myself. (T)	.35
33.	I hope to become something really big in the world. (T)	.33
38.	I have the feeling that I had better do something in life that will make people proud of me. (T)	.29
44.	I want to be something better than I am now. (T)	.31
51.	I desperately want to be a success in life. (T)	.44
120.	I want to do something in life that will make someone proud of me. (T)	.45

Scale II

154.	I would like to achieve satisfactory status in the community. (T)	.44
167.	I sometimes wish I could do something really great. (T)	.29

2. School and Education

29.	I feel that knowledge is necessary for effective everyday life. (T)	.29
34.	School has really been an important part of my life. (T)	.31
53.	I hate to see my friends drop out of college. (T)	.39
88.	I feel I should try to further my education. (T)	.23
101.	I hope to finish college. (T)	.36
159.	I know how important it is to go to college. (T)	.28
162.	College is a great help in assisting you to make something of yourself. (T)	.31
171.	With a good education a person is better prepared to go out on his own. (T)	.39
175.	I want to get all the education I possibly can. (T)	.32

3. Persistence and Progress Toward Goals

23.	I am trying to better myself as a person. (T)	.32
49.	I have already formulated certain objectives for my future in the world of work. (T)	.24
81.	I always play to win. (T)	.21
105.	I am a lazy person. (F)	-.40
164.	To the best of my ability, I like to finish things I have started. (T)	.33
177.	I enjoy working constructively, knowing that when I am finished, I'll have accomplished something worthwhile. (T)	.30
180.	If I start something, I'm likely to finish it. (T)	.36

4. Protestant Ethic

26.	I believe that you should work for what you get. (T)	.35
74.	I have a great respect for the property of other people. (T)	.38
89.	Although I sometimes feel like doing something foolish, I usually stop short of doing it. (T)	.31
106.	I like to work hard. (T)	.25
123.	I just don't feel like "putting my nose to the grindstone." (F)	-.36

Scale II

124.	I usually try my best to succeed. (T)	.41
132.	If I really work for the things I want, I will eventually get them. (T)	.32
137.	I think you are more apt to appreciate more those things for which you have worked so hard. (T)	.27
166.	One of the most important things in life is to have a career. (T)	.38
184.	I strive for perfection whenever I undertake a project. (T)	.34
186.	The prime force in my life will be my work. (T)	.21
194.	I like to learn. (T)	.24

5. Sense of Responsibility

15.	Someday I hope to hold a responsible place in the community. (T)	.47
187.	I hate the thought of responsibility. (F)	-.24

6. Ideals and Moral Standards

9.	I consider myself to be a good citizen. (T)	.33
24.	I am a person of high ideals. (T)	.29
104.	I have high moral standards. (T)	.38
178.	I want to be a well-rounded person. (T)	.35

7. Miscellaneous

13.	I am an unconventional person. (F)	-.24
62.	My family background has influenced me greatly to want to be successful. (T)	.25
65.	I like to help others when they are in trouble. (T)	.18
79.	I was born to raise hell. (F)	-.20
116.	People used to say that I was careless. (F)	-.29
118.	On the sports field, I feel pretty aggressive. (T)	.26
121.	I feel I know how to use authority without abusing it. (T)	.32
135.	I try to be patient with others. (T)	.35
188.	I try to treat everyone with the respect due him. (T)	.27

Person Orientation (PO)

SCALE III

For Scale III, the items are tentatively aligned into the following provisional subclusters:

1. Sociability, Helpfulness, and Generosity

200-Item Booklet Item #		Averaged r Point-biserial
8.	I don't socialize enough. (F)	-.43
11.	I enjoy talking with people. (T)	.27
27.	In general, I must say that I dislike people. (F)	-.29
113.	I like people. (T)	.32
127.	I am not a socially outgoing person. (F)	-.56
144.	Generally speaking, I'm friendly and outgoing with people. (T)	.38
156.	I seem to make friends easily. (T)	.40
185.	I enjoy being around people. (T)	.50

2. Interest in People, Many Friends

25.	I have friends of all kinds. (T)	.40
46.	There is nothing quite so interesting to me as trying to make friends with another person. (T)	.26
54.	My friends are few but close. (F)	-.37
67.	People interest me. (T)	.30
169.	I have few friends. (F)	-.50

3. Lack of Interpersonal Problems

17.	I feel awkward when meeting strangers. (F)	-.48
31.	I feel uncomfortable when I meet someone new. (F)	-.48
43.	People seem to like me. (T)	.28
71.	When introduced to someone, I tend to be a little shy. (F)	-.41
90.	I seldom hold a grudge. (T)	.24
91.	It has always been hard for me to make friends. (F)	-.47
96.	I am bashful around people I don't know very well. (F)	-.47
109.	I don't like to meet new people. (F)	-.34
163.	I am a shy person. (F)	-.46
195.	It takes me quite a while to feel at ease with a group of people new to me. (F)	-.53

Scale III

4. Social Activities

37.	I try not to miss any socially important event. (T)	.48
63.	I like going to parties, even though I may not know anyone who is going to be there. (T)	.33
87.	I like to give parties. (T)	.40
182.	I enjoy social events very much. (T)	.47

5. Preference for Group Interaction

6.	I like doing things in groups. (T)	.45
57.	I usually enjoy being with a crowd. (T)	.48
73.	I dislike crowds. (F)	-.50
76.	I prefer to be with just one friend than with a group. (F)	-.38
133.	I prefer small groups of people to large ones. (F)	-.32
190.	I dislike being in large groups of people. (F)	-.57
199.	I usually like to be left alone. (F)	-.47

6. Preference for Work Involving People Contact

3.	I hope that someday I will be able to work directly with people. (T)	.32
129.	I would like to work with youth groups. (T)	.27
155.	When working on a job, I prefer working by myself. (F)	-.27
160.	I like working with others very much. (T)	.46

7. Joie de Vivre

98.	I choose friends who like a lot of action. (T)	.20
115.	I like to dance. (T)	.33
165.	I have few dislikes. (T)	.23
170.	I am an easy-going person. (T)	.26

8. Miscellaneous

21.	I have a good home-life. (T)	.27
28.	I like to be noticed. (T)	.26
47.	I prefer quiet people to noisy ones. (F)	-.30
148.	I would rather listen than talk. (F)	-.24
153.	I think my friends would describe me pretty much the way I would describe myself. (T)	.24

Goal-Deficiency (GD)

SCALE IV

The following items appear on Scale IV and are grouped tentatively into subclusters, as the items seem, on an inspectional basis, to align themselves:

1. Passivity vs. Aggressiveness

200-Item Booklet Item #		Averaged r Point-biserial
12.	It seems that I keep fighting everything in life. (T)	.39
94.	I would like to "get even" with someone. (T)	.29
112.	I often tell a person I agree with him, even when I secretly don't agree at all. (T)	.30
128.	I have a bad temper. (T)	.24
150.	I try too hard to please others. (T)	.26
157.	When I'm angry, I try to keep it to myself. (T)	.21
168.	It takes a good deal of suffering to become worldly. (T)	.34
196.	It's hard for me to say "no" even when I know I should. (T)	.47

2. Self-Directed Hostility

66.	I'm always "putting myself down." (T)	.48
110.	I would never punish myself for something I felt guilty about. (F)	-.21

3. Accident-Proneness

161.	As a child, I was always getting hurt. (T)	.31
174.	It seems to me that I am in the wrong place at the right time too frequently. (T)	.40

4. "Sensitiveness"

22.	Embarrassing experiences stay with me for a long time. (T)	.44
193.	I'm too softhearted. (T)	.38

Scale IV

5. Lack of Confidence

18.	Sometimes I feel that I don't have what it takes to graduate from an institution of higher learning. (T)	.42
48.	I'm always concerned with what others might think of me. (T)	.40
99.	I seem to have more confidence in myself away from college. (T)	.35
146.	It scares me to think that I may never amount to anything. (T)	.47
149.	I don't have as much confidence in myself as I should. (T)	.46
192.	Sometimes I'm afraid that I just won't make the grade. (T)	.48

6. Neuroticism

50.	I feel I should mix more with people. (T)	.39
52.	I am a restless person. (T)	.36
56.	I feel much more at ease at home than I do at school. (T)	.24
64.	I worry over little things. (T)	.49
92.	I am rather a moody person. (T)	.33
136.	I frequently have "blue moods." (T)	.39
142.	I must admit that sometimes I feel a little self-pity. (T)	.33
147.	I am an impatient person. (T)	.30
151.	I am very self-conscious. (T)	.40
176.	I day-dream a lot. (T)	.49

7. Motivation- and Goal-Deficiency

41.	I need more time to think over what I'm going to do in life. (T)	.39
58.	I am completely stumped as to what occupation to go into. (T)	.22
61.	I do not always try to think for myself. (T)	.33
69.	I regret not pushing myself harder in my studies. (T)	.28
84.	I let everything go until the last minute. (T)	.36
85.	I wish that the ideas I have about myself could manifest themselves outwardly. (T)	.35
108.	I wish I were more ambitious. (T)	.41
119.	At the rate I'm going, it will take me forever to reach my goals in life. (T)	.42

Scale IV

126.	I tend to "let up" when the going gets rough. (T)	.40
140.	I don't apply myself the way I should. (T)	.48
145.	I lack motivation. (T)	.47
183.	I cannot keep my mind on one thing very long. (T)	.35
197.	I must admit that I lack self-determination. (T)	.49
200.	Just getting started on a task is difficult for me. (T)	.43

8. Family Background

40.	My parents, in one way or another, have pushed college on me. (T)	.29
72.	I had to look outside my home and family for the attention I thought I needed when I was growing up. (T)	.39
152.	My parents have been a good influence on me. (F)	-.21
158.	As a child, I was spoiled. (T)	.23

9. Miscellaneous

59.	I want to be praised for my accomplishments. (T)	.29

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